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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/645,255	ZHAO, FUYONG	
	Examiner	**Art Unit**	
	Jianye Wu	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _23 September 2008_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-25_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-25_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _2/5/04_.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendments/Remarks

1. arguments and all other documents filed on 9/23/2008 with respect to the rejection(s) of claim(s) 1-25 under 35 U.S.C. 103(a) are fully considered but not persuasive.

2. All independent claims have been amended by adding a new limitation that the second packet is sent from the destination node of the first packet. However, this limitation has been disclosed by the references cited by the previous Office Action because (the RTCP-RR packet is sent from the destination node of the RTCP-SR packet). Therefore, the rejections based on the references cited in the previous Office Action stand.

3. Regarding to the rejection of claim 1 based on Teruhi, Moy and RFC 2676, applicant argues:

a) the Office Action substitutes “a first actual time” with “the shortest path”, which is improper; and Office Action appears to ignore the actual time (page 9-11);

b) Teruhi does not disclose that delay is a time that a control packet (a RTCP-SR packet takes to travel from the sender to receiver (page 11-13).

In response, **Examiner respectfully disagrees**:

a) the Office Action does not substitutes “a first actual time” with “the shortest path”. Instead, the Office Action clearly states that Teruhi discloses the shortest path, but is silent on the shortest path is measured in terms of the shortest travel time, which is disclosed by Moy and RFC 2676. The combination of Teruhi, Moy and RFC 2676

discloses the shortest travel time. As acknowledged by Applicant that the shortest path may be measured in terms of “hop”, or “travel time”, or other criterion (page 10).RFC 2676 discloses using the travel time (delay, as explained in previous Office Action) as the criterion to measure the “shortest path”.

b) Teruhi clearly discloses RTCP-SR, which is a Real Time Control Packet for Sender Report. A RTCP-SR packet records the time in the packet when the packet is sent from the sender. When the RTCP-SR packet is received by a receiving node, the delay time (actual traveling time) can be easily found by subtracting the sending time from the time when the RTCP-SR packet is received at the receiving node.

Applicant's arguments on claim 2-8 and 18-20 (page 13) are not persuasive because they are based on the argument of claim 1.

4. regarding to the rejection of claim 1 based on Caro and RFC 2676, applicant argues:

a) “A combination of RFC 2676 and Caro, as suggested by the Office Action, would completely violate the advantage gained by the probabilistic model of Caro” (page 16); in other word, applicant argues that there is no good reason to combine Caro and RFC 2676 (page 14-16).

b) “… the probabilistic route selection in Caro is replaced with selecting a neighbor router that has a lowest amount of delay time from source node to the destination node in searching the best routing. As a result, Caro’s critical probabilistic model including selecting routers based on probabilistic values must be replaced in this proposed combination and its operating principal violated” (page 16-17).

In response, Examiner respectfully disagrees:

a) As pointed out by the Office Action, Caro teaches using the ant packet to obtain the shortest path, which includes any kinds of shortest path, such as the shortest path in terms of traveling time as disclosed by RFC 2676. This does not in any way violates the principle disclosed by Caro's critical probabilistic model;

b) Caro teaches building a routing table based on a probabilistic model. After the routing table is built, a shortest path can be found between any two nodes, Which does not violate Caro's critical probabilistic model in any way because Caro's model is used in **building** the routing table, **not in finding** the shortest path.

Applicant's arguments on claim 2-25 (page 17) are not persuasive because they are based on the argument of claim 1 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 1-2, 4-5,** and **7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Teruhi et al (US 20030072269, hereinafter **Teruhi**) in view of J. Moy et al. IETF RFC 1247 “OSPF Version 2” July 1991 (hereinafter **RFC 1247**) and Apostolopoulos, et al., INTF RFC 2676 “QoS Routing Mechanisms and OSPF Extensions”, August 1999 (hereinafter **RFC 2676**)

For **claim 1**, Teruhi discloses a method comprising the computer-implemented steps of:

Selecting, from a set of routers, a particular router that is associated with a first actual time is a shortest time among all times among all times associated with routers in the set of routers (selecting a router from a set of routers which has a shortest path to a destination from a routing table, [007]);

wherein the first actual time (the shortest time from the particular router to the destination in the routing table) has been updated with a previous actual time taken for a previous data packet to travel to a previous destination indicated by the previous data packet (routing table is updated based on previous traffic, [0007]);

sending a first data packet (RTCP-SR 80, FIG. 5) to the particular router;

receiving a second data packet (RTCP-RR 70, FIG. 4) that indicates an second amount of time (DELAY SINCE LAST SR 74 of FIG. 4) taken for a destination back to the sending router;

wherein the destination indicated by the first data packet is the same as the previous destination indicated by the previous data packet (FIG. 10, RTCP-RR packet is

sent to the destination following a path in the routing table built based on the previous data packet);

wherein the second data packet is sent from the destination indicated by the first data packet (FIG. 10, where RTCP-RR is sent from the destination of RTCP-SR).

Teruhi **is silent on** the following:

selecting the path that the first packet is predicted to reach the destination in a shortest time (the first time); wherein the first time has been updated with a previous time taken for a previous data packet to travel to a previous destination (which is the same as the destination) indicated by the previous data packet; and wherein the destination indicated by the first data packet is the same as the previous destination indicated by the previous data packet;

updating the shortest time based on the second time (the trip time of the second packet from the destination to the sending router); and

updating the routing table based on information contained in the second data packet.

RFC 1247 teaches updating the routing table and updating shortest path (shortest-path, 3rd paragraph of Section 1.1, Page 2).

RFC 1247 is silent on the shortest path in term of traveling time.

RFC2676 teaches the shortest path in terms of traveling time (delay, line 8 of first paragraph in Section 1.2, Page 5, which is the time difference between the time that a RTCP packet leaving a node A and the time the packet arrives a node B, and is equivalent to the actual traveling time from the node A to the node B), which is the

shortest time of the all the previous packets traveled from the set of nodes to the destination node.

Teruhi, RFC 1247, and RFC 2676 all teach the same art (routing). Furthermore, RFC 1247 is explicitly cited by Teruhi, and RFC 2676 is an extension of RFC 1247. One skilled in the art would have been motivated to combine them together to select the shortest (when measured in time) path for the first packet; and update the shortest time with the second time and then update the routing table accordingly.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to choose the shortest path (in term of traveling time) and update the first (shortest) time and the routing table based on the information from the second packet for the benefit of efficiency of network.

As to **claim 2**, Teruhi, RFC 1247, and RFC 2676 in combination disclose the method of Claim 1, further comprising: updating a path associated with both the destination and the particular router (by considering the particular router as the sending router in claim 1).

As to **claim 4**, Teruhi, RFC 1247, and RFC 2676 in combination disclose the method of Claim 1, whether a path taken by the first data packet is feasible (based on updated routing table).

As to **claim 5**, Teruhi, RFC 1247, and RFC 2676 in combination disclose the method of Claim 1, further comprising: updating, based on information contained in the second data packet, a list of routers that indicates all routers in a path taken by the first data packet to a router that sent the first data packet to a present router (This is

equivalent to applying claim 1 to each outer of the list, therefore is rejected for the same reason as explained in claim 4 above).

As to **claim 7**, it is rejected for the same reason explained in claim 4 above.

7. **Claims 3** and **6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Teruhi in view of RFC 2676.

As to **claim 3**, Teruhi discloses the method of Claim 1.

Teruhi **is silent on** the second data packet information including the bandwidth available on a path taken by the second data packet.

RFC 2676 teaches the routing packet containing QoS information (Line 3 of Page 5), particularly bandwidth information (Line 7 of Section 1.2, Page 5).

One skilled in the art would have been motivated to apply the teaching by RFC 2676 to the second packet to provide additional information for better routing options. Furthermore, OSPF technology taught by 2676 is cited by the applicant in the disclosure.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include bandwidth information in the second packet for the benefit of efficiency of providing better routing options.

As to **claim 6**, it is rejected for the same reason explained in claim 3 above.

8. **Claims 8** and **18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 1247 in view of RFC 2676.

For **claim 8**, RFC 1247 disclose a method of updating a routing table, comprising steps of:

for each neighbor router in a set of neighbor routers (neighboring routers, page 4), selecting a shortest path to a specified destination via a set of neighbor routers (shortest paths, 3rd paragraph of 1.1, page 2);

wherein the shortest path has been updated with a previous data packet to travel to the specified destination (Link State Update, table 8, page 26, where the routing is updated based previous routing data packets) ;

send a first data packet to the specified destination (sending Link State Request packet to the destination, 3rd paragraph of page 74);

receiving a second data packet from the specified destination (receiving sending Link State Request packet from the destination, 3rd paragraph of page 74);

wherein the second data packet is sent from the destination (FIG. 10, where RTCP-RR is sent from the destination of RTCP-SR);

updating the routing table based on information contained in the second data packet ("updating the necessary part of its database", 3rd paragraph of page 74).

RFC 1247 **is silent on** the measurement parameter in routing table is the time (or delay) for a packet to travel from a source router to a destination router.

RFC 2676 discloses using delay (line 8 of Section 1.2, Page 5) as one of QoS parameters for routing measurement (the shortest delay includes the information of delay times of all the previous packets to the destination), which are used to the updating routing table. RFC 2676 teaches enhancement of OSPFv2 by RFC 1247. It would be obvious for one skilled in the art to combine RFC 1247 with RFC 2676 to use

<u>time delay in the routing table, and update the routing table for the shortest path in term of delay time between two routers</u>.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to using delay time as routing measurement parameters to update routing table.

As to **claim 18**, it is a computer-readable medium claim of the claim 8, therefore, is rejected for the same reason explained in claim 8 above.

As to **claim 19**, it is a means for claim of the claim 8, therefore, is rejected for the same reason explained in claim 8 above.

As to **claim 20**, it is an apparatus claim of the claim 8, therefore, is rejected for the same reason explained in claim 8 above.

9. **Claim 1-25** are rejected under 35 U.S.C. 103(a) as being 103(a) as being unpatentable over Gianni Di Caro et al., “AntNet: Distributed Stigmergetic Control for Communications Networks”, Journal of Artificial Intelligence Research, 12/98 (hereinafter Caro) in view of RFC 2676 (which includes the recited RFC 1247).

For **claim 1**, Caro discloses a method comprising the computer-implemented steps of:

sending a first data packet from a sending router to a given destination via a particular router so that the packet arrives at the destination (<u>forward ant, step 1 of page 326, line 1-3</u>); wherein the first time has been updated with a previous time taken for a previous data packets (<u>the routing table is built based on previous routing data packets</u>);

receiving a second data packet that indicates an second amount of time from taken for the destination back to the sending router (backward ant, step 5 of page 327);

selecting the path according to a criterion that the first packet (forward ant packet) is predicted to reach the destination (the trip time that the forward ant packet travel from source node to destination node, step 2 of page 326);

wherein the second data packet is sent from the destination indicated by the first data packet (the backward ant is sent from the destination of the forward ant packet);

updating the shortest time based on the second time (the trip time of the backward ant packet, step 5 of page 328); and

updating the routing table based on information contained in the second data packet (step 7, page 328-329).

Caro **is silent on** the criterion for the shortest path is based on the shortest time (the first time, which is in a shortest time that the first packet is predicted to reach the destination);

In the same field of endeavor (routing), RFC2676 teaches routing the shortest path in term of traveling time (delay, line 8 of first paragraph in Section 1.2, Page 5).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to choose the shortest path (in term of traveling time) and update the first (shortest) time and the routing table based on the information from the second packet for the benefit of efficiency of network.

As to **claim 2**, Caro and RFC 2676 disclose the method of Claim 1, Caro further discloses the method comprising: updating a path associated with both the destination

and the particular router (“updates the two main data structures of node”, line 1-2 of step 7, page 328).

As to **claim 3**, Caro and RFC 2676 disclose the method of Claim 1, but are silent on the second data packet information including the bandwidth available on a path taken by the second data packet.

RFC 2676 teaches the routing packet containing QoS information (Line 3 of Page 5), particularly bandwidth information (Line 7 of Section 1.2, Page 5).

One skilled in the art would have been motivated to apply the teaching by RFC 2676 to the second packet to provide additional information for better routing options. Furthermore, OSPF technology taught by 2676 is cited by the applicant in the disclosure.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include bandwidth information in the second packet for the benefit of efficiency of providing better routing options.

As to **claim 4**, Caro and RFC 2676 disclose the method of Claim 1, whether a path taken by the first data packet is feasible (a path predicted to take a shortest time from the source node to the destination node is always feasible).

As to **claim 5**, Caro and RFC 2676 disclose the method of Claim 1, Caro further discloses the method comprising: updating, based on information contained in the second data packet, a list of routers that indicates all routers in a path taken by the first data packet to a router that sent the first data packet to a present router (step 5 of page 327 and “updates the two main data structures of node”, line 1-2 of step 7, page 328).

As to **claim 6**, it is rejected for the same reason explained in claim 3 above.

As to **claim 7**, it is rejected for the same reason explained in claim 4 above.

For **claim 8**, Caro discloses a method of updating a routing table (steps 1-7, page 326-330), comprising steps of:

for each neighbor router in a set of neighbor routers ("every network node", line 1 of step 1, page 326), selecting a path to a specified destination via a set of neighbor routers (line 1-2 of step 3 and step 5, page 327);

wherein the shortest path has been updated with a previous time taken for a previous data packet to travel to the specified destination (the routing table is updated based previous routing data packets) ;

send a first data packet to the specified destination ("destination nod d is reached", step 5, page 327);

receiving a second data packet from the specified destination (step 6, page 328);

wherein the second data packet is sent from the specified destination (the backward ant is sent from the destination of the forward ant packet);

updating the routing table based on information contained in the second data packet (step 7, page 328).

Caro **is silent** on the path is the shortest in terms of delay time from a source router to a destination router and the shortest amount of time is updated with data packet travel to the specified destination.

In the same field of endeavor, RFC 2676 discloses OSPF extensions on routing based on path QoS parameters (lines 1-5 of page 3). Since time delay (trip time) is one

of most important QoS parameters, it would have been obvious to one skilled in the art to use the shortest trip time (delay time) as the criteria for the shortest path.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Caro with RFC 2676 to selecting a particular neighbor router that has a lowest amount of delay time from source node to the destination node in searching the best routing.

For **claim 9**, Caro discloses a method of updating a routing table (Node routing table, page 331, line 6), the method comprising the computer-implemented steps of:

for each neighbor router in a set of neighbor routers ("every network node", line 1 of step 1, page 326), associating the neighbor router with an amount of time ("elapsed_time", page 331, line 19; or step 2 of page 326), predicted to be required for a data packet to travel to a specified destination if the data packet is transmitted through the neighbor router (elapsed_time, page 331, line 19; or step 2 of page 326);

wherein the shortest path has been updated with a previous time taken for a previous data packet to travel to the specified destination (the routing table is updated based previous routing data packets);

receiving a forward ant data packet (LanuchForwardAnt, line 13 of page 331) that indicates the specified destination (page 331, line 14-20; or step 2 of page 326); selecting, based on one or more first specified criteria (goodness, first paragraph of Section 4.2, page 330; or step 3 of page 327), a subset of the set of neighbor routers (from page 331, line 14-20 where forward ant can only be passed to neighboring routers one at a time);

in response to receiving the forward ant data packet, relative to the specified destination, among amounts of time associated with neighbor routers in the subset of neighbor routers (first paragraph of Section 4.2, page 330);

sending the forward ant data packet to the particular neighbor router (lines 14-20, page 331);

receiving a backward ant data packet that indicates a second amount of time taken for the forward ant data packet to travel to the specified destination (lines 14-20, page 331);

wherein the second data packet is sent from the specified destination (the backward ant is sent from the destination of the forward ant packet);

determining, based on information indicated in the backward ant data packet, whether one or more second specified criteria are satisfied (line 5-30 of page 331, determining is based on M=Local traffic model and T=Node routing table); and

if the one or more second specified criteria are satisfied, then performing steps comprising:

updating the first amount of time based on the second amount of time (UpdateLocalTrafficModel, line 24 of Page 331); and

if one or more third specified criteria are satisfied, then updating, based on information indicated in the backward ant data packet, the routing table (UpdateLocalRoutingTable, line 26 of Page 331).

Caro does not explicitly disclose selecting a particular neighbor router that is associated with a first amount of time that is a lowest amount of time, but defines a

goodness in terms of trip time ("as estimated using the associated trip time", line 27-34 of page 329) that is used as a measure for determining routing between nodes.

In the same field of endeavor, RFC 2676 discloses OSPF extensions on routing based on path QoS parameters (lines 1-5 of page 3). Since time delay is one of most important QoS parameters, it would have been obvious to one skilled in the art to use the shortest trip time (delay time) as the criteria for the shortest path.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Caro with RFC 2676 to selecting a particular neighbor router that has a lowest amount of delay time from source node to the destination node in searching the best routing.

As to **claim 10**, Caro and RFC 2676 disclose the method of Claim 9, wherein the one or more first specified criteria comprise a criterion that no neighbor router in the subset of neighbor routers is contained in a list of routers that have already been visited by the forward ant data packet ("choosing among the neighbors it did not already visit", line 1-2 of page 327).

As to **claim 11**, Caro and RFC 2676 disclose the method of Claim 9, Caro further discloses the method comprising:

determining whether any neighbor router in the set of neighbor routers is associated with an amount of time that is lower than the first amount of time ("as estimated using the associated trip time", line 27-34 of page 329); and

if any neighbor router in the set of neighbor routers is associated with an amount of time that is lower than the first amount of time, then updating the forward ant data

packet to indicate a present router in a loop-avoidance router field of the forward ant data packet (step 4 of page 327, line 1-3).

As to **claim 12**, Caro and RFC 2676 disclose the method of Claim 11, Caro further discloses wherein a loop-avoidance router field ("memory of their paths and of the traffic conditions found", lines 1-2 of step 2 in page 326; notice that a backward ant packet has the same structure as forward ant packet) of the backward ant data packet indicates a router indicated by the loop-avoidance router field of the forward ant data packet ("The backward ant takes the same path as that of its corresponding forward ant, but in the opposite direction", step 6 of page 328).

As to **claim 13**, Caro and RFC 2676 disclose the method of Claim 12, Caro further discloses wherein the one or more second specified criteria comprise a criterion ("trip time", line 10 of page 329) that the router indicated by the loop-avoidance router field of the backward ant data packet is not contained in a list of routers that the forward ant visited after visiting a present router (step 3 of page 327, line 1-2; notice that a backward ant packet has the same structure as forward ant packet).

As to **claim 14**, Caro and RFC 2676 disclose the method of Claim 9, but is silent on wherein the one or more specified criteria comprise a criterion that the second amount of time is lower than any other amount of time, relative to the specified destination, among amounts of time associated with neighbor routers in the set of neighbor routers.

However, the criterion that the second amount of time is lower than any other amount of time is used in OSPF (disclosed by RFC 2676) in determining the shortest path.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to specify criterion that the second amount of time is lower than any other amount of time in order to find the shortest path.

As to **claim 15**, Caro and RFC 2676 disclose the method of Claim 9, but are silent on the method comprising: determining whether a router from which the backward ant data packet was received matches a router associated with the destination in the routing table; and if the router from which the backward ant data packet was received does not match the router associated with the destination in the routing table, then updating a path feasibility flag of the backward ant to indicate that a path taken by the forward ant is not feasible.

However, the method requires the forward ant packet and the backward ant packet go through the same route (in opposite direction). If the backward ant packet cannot following the same route as the forward ant packet, the ant packet will be destroyed according to Caro (step 4 of page 327). It is a common practice in the art that one way of destroying a packet is to set a flag of the packet so that it can be destroyed at proper time or location.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to set a flag of the received backward ant packet if routing

information of the packet does not match the routing table of the router in order to comply with the protocol.

As to **claim 16**, Caro and RFC 2676 disclose the method of Claim 15, but is silent on wherein the one or more third specified criteria comprise a criterion that the path feasibility flag of the backward ant indicates that the path taken by the forward ant is feasible.

However, <u>the criterion that the second amount of time is lower than any other amount of time is used in OSPF (disclosed by RFC 2676) in determining the shortest path</u>.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to specify criterion that the second amount of time is lower than any other amount of time in order to find the shortest path.

As to **claim 17**, Caro and RFC 2676 disclose the method of Claim 9, but is silent on wherein the one or more third specified criteria comprise a criterion that a path taken by the forward ant data packet from a present router to the specified destination does not include any routers that are identified in a potential upstream node list.

However, <u>the criterion that the second amount of time is lower than any other amount of time is used in OSPF (disclosed by RFC 2676) in determining the shortest path</u>.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to specify criterion that the second amount of time is lower than any other amount of time in order to find the shortest path.

As to **claim 18**, it is a computer-readable medium claim of the claim 8, therefore, is rejected for the same reason explained in claim 8 above.

As to **claim 19**, it is a means for claim of the claim 8, therefore, is rejected for the same reason explained in claim 8 above.

As to **claim 20**, it is an apparatus claim of the claim 8, therefore, is rejected for the same reason explained in claim 8 above.

As to **claim 21**, Caro and RFC 2676 disclose the method of Claim 20, Caro further discloses wherein the stored swquences of instructions include instructions which, when executed by the processor, cause the processor to further carry out: updating, based on information contained in the second data packet, a path associated with both the destination and the particular router (<u>step 6, page 328, the same path as that of its corresponding forward ant</u>).

As to **claim 22**, Caro and RFC 2676 disclose the method of Claim 20, Caro further discloses wherein the stored sequences of instructions include instructions which, when executed by the processor, cause the processor to further carry out: updating, based on information contained in the second data packet, an indication of an amount of bandwidth available (<u>characterized by a bandwidth, lines 10-11 of page 322</u>) on the path taken by the second data packet (<u>bandwidth is considered as a criterion of feasible path in algorithm specified in steps 1-7 of pages 326-330</u>).

As to **claim 23**, Caro and RFC 2676 disclose the method of Claim 20, Caro further discloses wherein the stored sequences of instructions include instructions which, when executed by the processor, cause the processor to further carry out:

updating, based on information contained in the second data packet, whether a path taken by the first data packet is feasible (steps 1-7 of pages 326-330, particularly step 6 of page 328).

As to **claim 24**, Caro and RFC 2676 disclose the method of Claim 20, Caro further discloses wherein the stored sequences of instructions include instructions which, when executed by the processor, cause the processor to further carry out: updating, based on information contained in the second data packet, a list of routers that indicates every router in a path taken by the first data packet from a router that sent the first data packet to a present router (steps 1-7 of pages 326-330, particularly step 6 of page 328).

As to **claim 25**, Caro and RFC 2676 disclose the method of Claim 20, Caro further discloses wherein the stored sequences of instructions include instructions which, when executed by the processor, cause the processor to further carry out: updating, based on information contained in the second data packet to indicate an amount of bandwidth available (characterized by a bandwidth, lines 10-11 of page 322) on the path taken by the second data packet (bandwidth available is considered as a criterion of feasible path in algorithm specified in steps 1-7 of pages 326-330, which includes routing based on bandwidth).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jianye Wu/

Examiner, Art Unit 2416

/Seema S. Rao/

Supervisory Patent Examiner, Art Unit 2416